

pub B1  
21. (new) A backup system for enabling continuous backup of computer data stored at a computer to a mass storage system, said backup system comprising:

A  
a) an operating system for receiving write commands from an application installed on the computer and for converting each received write command into a sector write having a sector address and sector data;

b) a source of time information;

c) a log-assisted disk for processing sector writes sent to the log-assisted disk by the operating system, said processing including receiving the sector writes, accumulating the sector writes, and associating each sector write with the time information, thereby creating a log entry;

d) a storage for accepting log entries; and

e) means for communicating the log entry to the storage, wherein the operating system, the source of time information, the log-assisted disk, and the communicating means are in electrical communication with each other within a computer.

22. (new) The backup system of claim 21 wherein the storage for accepting log entries is located within the computer.

23. (new) The backup system of claim 21 wherein the storage for accepting log entries is in network communication with the computer.

24. (new) The backup system of claim 23 wherein the communication means is a network interface card.

25. (new) The backup system of claim 23 wherein the storage for accepting log entries receives log entries from multiple computers in a network.

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26. (new) The backup system of claim 23 wherein the network is the Internet.

27. (new) The backup system of claim 21 wherein the storage for accepting log entries further comprises:

AA  
a) a network connection for accepting the log entries and for sending said log entries into network; and  
b) a server for accepting log entries from the network and for providing the log entries to a log file on a log file mass storage device.

28. (new) The backup system of claim 21 wherein the storage for accepting log entries is a hard disk system.

29. (new) The backup system of claim 21 wherein the storage for accepting log entries is a RAM-based virtual disk.

30. (new) The backup system of claim 21 wherein the storage for accepting log entries is a non-volatile storage.

31. (new) The backup system of claim 27 wherein the mass storage device is a hard disk system.

32. (new) The backup system of claim 27 wherein the mass storage device is a non-volatile storage.

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33. (new) A method for continuously backing up computer data to a mass storage system, said method comprising:

- AA
- a) receiving write commands from an application running on a computer;
  - b) converting each received write command to a sector write having a sector address and sector data;
  - c) sending each sector write to a log-assisted disk;
  - d) combining each sector write with a time stamp at the log-assisted disk, thereby forming a log entry;
  - e) queuing log entries at the log-assisted disk;
  - f) communicating the log entries to a mass storage system; and
  - g) storing the log entries in a log file at the mass storage system.

34. (new) The method of claim 33 further including taking a snapshot of the data stored on the computer prior to receiving write commands.

35. (new) The method of claim 33 wherein the mass storage system is in network communication with the computer.

36. (new) The method of claim 33 wherein the mass storage system is located at the computer.

37. (new) The method of claim 35 wherein communicating the log entries to the mass storage system is further defined by:

- a) providing the log entries to a network interface at the computer;
- b) using the network interface to couple the log entries into a network; and
- c) accepting the log entries from the network at the mass storage system.

38. (new) The method of claim 33 wherein the step of storing the log entries in a log file is further defined by:

*A1*  
*Contd*  
a) determining a sector address to be written to from a received log entry;

b) searching for log entries having an earlier time stamp which were written to the same sector address; and

c) deleting any log entries with an earlier time stamp which were written to the same sector address as the received log entry.

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